

Title (en)
IMPROVED HYDROPHOBIC AEROGEL MATERIALS

Title (de)
VERBESSERTE HYDROPHOBE AEROGELMATERIALIEN

Title (fr)
MATÉRIAUX D'AÉROGEL HYDROPHOBES AMÉLIORÉS

Publication
EP 4296303 A2 20231227 (EN)

Application
EP 23206689 A 20151002

Priority

- US 201462059555 P 20141003
- US 201562118864 P 20150220
- US 201562232945 P 20150925
- EP 15784992 A 20151002
- US 2015053750 W 20151002

Abstract (en)
The present disclosure provides an aerogel composition which is durable and easy to handle, which has favorable performance in aqueous environments, and which also has favorable combustion and self-heating properties. Also provided is a method of preparing an aerogel composition which is durable and easy to handle, which has favorable performance in aqueous environments, and which has favorable combustion and self-heating properties. Further provided is a method of improving the hydrophobicity, the liquid water uptake, the heat of combustion, or the onset of thermal decomposition temperature of an aerogel composition.

IPC 8 full level
C08K 3/36 (2006.01)

CPC (source: CN EP IL KR RU US)
B01J 13/0091 (2013.01 - EP IL KR US); **C01B 33/1585** (2013.01 - CN EP IL KR RU US); **C01B 33/159** (2013.01 - CN EP IL KR RU US); **C04B 38/06** (2013.01 - EP); **C08J 9/0085** (2013.01 - EP); **C08J 9/28** (2013.01 - IL); **C08K 3/04** (2013.01 - CN IL US); **C08K 3/22** (2013.01 - CN IL US); **C08K 3/34** (2013.01 - CN IL US); **C08K 3/36** (2013.01 - CN IL US); **C08K 3/38** (2013.01 - CN IL US); **C08J 9/28** (2013.01 - EP US); **C08J 2201/05** (2013.01 - EP); **C08J 2205/026** (2013.01 - EP IL US); **C08J 2383/02** (2013.01 - EP); **C08J 2383/04** (2013.01 - EP); **C08K 2003/2241** (2013.01 - CN IL US); **C08K 2003/2262** (2013.01 - CN IL US)

C-Set (source: EP)
C04B 38/06 + C04B 28/24 + C04B 24/42 + C04B 38/0067 + C04B 32/02

Citation (applicant)

- US 2002094426 A1 20020718 - STEPANIAN CHRISTOPHER J [US], et al
- US 2007272902 A1 20071129 - EVANS OWEN R [US], et al
- US 2005192367 A1 20050901 - OU DUAN L [US], et al
- US 4610863 A 19860909 - TEWARI PARAM H [US], et al
- US 6670402 B1 20031230 - LEE KANG P [US], et al
- US 5962539 A 19991005 - PERRUT MICHEL [FR], et al
- US 6315971 B1 20011113 - WALLACE STEPHEN [US], et al
- US 5420168 A 19950530 - MAYER STEVEN T [US], et al
- US 5565142 A 19961015 - DESHPANDE RAVINDRA [US], et al
- US 5275796 A 19940104 - TILLOTSON THOMAS M [US], et al
- US 5395805 A 19950307 - DROEGE MICHAEL W [US], et al
- GEPI ET AL.: "Applications of Solid-State NMR to the Study of Organic/Inorganic Multicomponent Materials", APPL. SPEC. REV., 2008, pages 7 - 9
- KISTLER, J. PHYS. CHEM., vol. 36, 1932, pages 52 - 64
- RAO ET AL., J. SOL-GEL SCI. TECH., vol. 30, 2004, pages 141 - 147
- LIU ET AL., J. SOL-GEL SCI. TECH., vol. 62, 2012, pages 126 - 133
- ZHOU ET AL., INORG. MAT., 2008

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
WO 2016054524 A2 20160407; WO 2016054524 A3 20160602; AU 2015327930 A1 20170427; AU 2015327930 B2 20180510; AU 2015327930 C1 20180913; AU 2018214125 A1 20180830; AU 2018214125 B2 20190725; AU 2019253873 A1 20191114; AU 2019253873 B2 20210506; AU 2021209172 A1 20210819; AU 2021209172 B2 20221201; AU 2023201064 A1 20230504; BR 112017006480 A2 20171219; BR 112017006480 B1 20221011; CA 2961772 A1 20160407; CA 2961772 C 20190618; CA 3041713 A1 20160407; CL 2017000797 A1 20171229; CN 106794996 A 20170531; CN 114804124 A 20220729; CN 114804125 A 20220729; CN 114804126 A 20220729; CN 114804126 B 20240308; CN 114853024 A 20220805; CN 118125456 A 20240604; CO 2017003835 A2 20170810; EP 3201133 A2 20170809; EP 4234618 A2 20230830; EP 4234618 A3 20231206; EP 4234619 A2 20230830; EP 4234619 A3 20231206; EP 4234620 A2 20230830; EP 4234620 A3 20231206; EP 4296303 A2 20231227; EP 4296303 A3 20240320; IL 251278 A0 20170529; IL 251278 B 20211031; IL 287217 A 20211201; IL 287217 B1 20231001; IL 287217 B2 20240201; JP 2017533163 A 20171109; JP 2019089707 A 20190613; JP 2021095331 A 20210624; JP 2023053125 A 20230412; JP 6487542 B2 20190320; JP 7219113 B2 20230207; JP 7227291 B2 20230221; KR 102023074 B1 20190919; KR 102103218 B1 20200422; KR 102103220 B1 20200422; KR 102164554 B1 20201012; KR 102164569 B1 20201012; KR 102312815 B1 20211013; KR 102312822 B1 20211013; KR 102412103 B1 20220622; KR 20170063800 A 20170608; KR 20190026987 A 20190313; KR 20190027961 A 20190315; KR 20190027962 A 20190315; KR 20190027963 A 20190315; KR 20200117068 A 20201013; KR 20200118232 A 20201014; KR 20210126151 A 20211019; KR 20220088812 A 20220628; MX 2017003836 A 20170628; MX 2022000006 A 20220225; MX 2022000011 A 20220302; MX 2022000017 A 20220302; MX 2022000019 A 20220302; MX 2022000022 A 20220302; MY 179571 A 20201111; RU 2668657 C1 20181002; SG 10202001165V A 20200330; SG 11201702138X A 20170427; TW 201638221 A 20161101; TW 1588209 B 20170621; US 10227472 B2 20190312; US 10233302 B2 20190319; US 10233303 B2 20190319; US 10253159 B2 20190409; US 11208539 B2 20211228; US 11597814 B2 20230307; US 11807734 B2 20231107; US 11807736 B2 20231107; US 2016096949 A1 20160407; US 2018094114 A1 20180405; US 2018112057 A1 20180426; US 2018112058 A1 20180426;

US 2018134867 A1 20180517; US 2019203014 A1 20190704; US 2022081532 A1 20220317; US 2022289939 A1 20220915;
US 2023134383 A1 20230504; US 2024026121 A1 20240125; US 9868843 B2 20180116; ZA 201702245 B 20190130;
ZA 201805867 B 20191127

DOCDB simple family (application)

US 2015053750 W 20151002; AU 2015327930 A 20151002; AU 2018214125 A 20180810; AU 2019253873 A 20191024;
AU 2021209172 A 20210726; AU 2023201064 A 20230223; BR 112017006480 A 20151002; CA 2961772 A 20151002; CA 3041713 A 20151002;
CL 2017000797 A 20170403; CN 201580053603 A 20151002; CN 202210522778 A 20151002; CN 202210522793 A 20151002;
CN 202210522885 A 20151002; CN 202210523243 A 20151002; CN 202410248590 A 20151002; CO 2017003835 A 20170420;
EP 15784992 A 20151002; EP 23176093 A 20151002; EP 23176163 A 20151002; EP 23176167 A 20151002; EP 23206689 A 20151002;
IL 25127817 A 20170320; IL 28721721 A 20211013; JP 2017516991 A 20151002; JP 2019027986 A 20190220; JP 2021037360 A 20210309;
JP 2023018620 A 20230209; KR 20177011118 A 20151002; KR 20197006871 A 20151002; KR 20197006872 A 20151002;
KR 20197006873 A 20151002; KR 20197006874 A 20151002; KR 20207028360 A 20151002; KR 20207028361 A 20151002;
KR 20217032324 A 20151002; KR 20227020789 A 20151002; MX 2017003836 A 20151002; MX 2022000006 A 20170323;
MX 2022000011 A 20170323; MX 2022000017 A 20170323; MX 2022000019 A 20170323; MX 2022000022 A 20170323;
MY PI2017700939 A 20151002; RU 2017115119 A 20151002; SG 10202001165V A 20151002; SG 11201702138X A 20151002;
TW 104132506 A 20151002; US 201514873753 A 20151002; US 201715835005 A 20171207; US 201715835136 A 20171207;
US 201715835190 A 20171207; US 201715835258 A 20171207; US 201916298212 A 20190311; US 202117531334 A 20211119;
US 202217714193 A 20220406; US 202218147132 A 20221228; US 202318476661 A 20230928; ZA 201702245 A 20170330;
ZA 201805867 A 20180831